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EXAMINER

AGGARWAL, YOGESH K

ART UNIT

PAPER NUMBER

2615

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/672,987

Applicant(s)

PINE, JOSHUA I.

Examiner

Yogesh K Aggarwal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 7, 9, 11, 12, 13, 18, 19, 22, 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Kozuka (US PG-PUB # 2002/0044699 A1).

[Claim 1]

A selectable resolution image capture system (figure 4) comprising:

an imager having a plurality of photocells (figure 4: 4 and 4') that produce an analog electrical response to light exposure (Paragraph 51, lines 3-4, paragraph 58 lines 1-5);

a circuit that converts the electrical responses of the plurality of photocells into digital signals

[Paragraph 90 lines 5-6, Image sensor disclosed in figures 4, 5 or 6 is used in an image reading apparatus in figures 10 and 11 and the output from the image sensor is subject to A/D conversion to convert the analog voltages into digital values];

the circuit having a full-resolution mode and a low-resolution mode (Paragraph 50); and

an image processor that operates the circuit and selects between the full-resolution and low-resolution modes of the circuit to capture an image [MODE pulse which is used for selecting the high and low resolution inherently is being controlled by an image processor or a resolution switching function means, Paragraph 0002].

[Claim 2]

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The selectable resolution image capture system of claim 1, where the circuit, in the full-resolution mode, converts the electrical response of each photocell into a corresponding digital signal to produce a full-resolution image (Paragraph 76 lines 1-2).

[Claim 3]

The selectable resolution image capture system of claim 1, where the circuit, in the low-resolution mode, combines the electrical responses of groups of at least two photocells together and converts each group of combined electrical responses into a corresponding digital signal, to produce a low-resolution image (Paragraph 76 lines 4-6)[four pixels from two adjacent chips comprising the image sensor are combined to produced a low resolution image].

[Claim 4]

The selectable resolution image capture system of claim 3, where each group comprises four contiguous photocells (Paragraph 76 lines 4-6)[four pixels from two adjacent chips comprising the image sensor are combined to produced a low resolution image].

[Claim 7]

The selectable resolution image capture system of claim 1, further comprising a user interface that permits a user to select from among a plurality of image resolutions (Paragraph 4, Paragraph 5 lines 1-6 figure 1).

[Claim 9]

The selectable resolution image capture system of claim 1, wherein the imager is a color imager having a plurality of red, green, and blue photocells producing electrical responses to red, green, and blue light, respectively (Paragraph 99 suggests that the reading unit is composed of R, G and B pixels and so is used to read an imager having a plurality of red, green, and blue photocells).

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[Claim 11]

The selectable resolution image capture system of claim 1, where the circuit has first and second read rates for the conversion of the electrical responses of the plurality of photocells into digital signals, where the second read rate is faster than the first read rate, and where the circuit operates at the first read rate in the full-resolution mode and at the second read rate in the low-resolution mode (Paragraph 0064, lines 4-8).

[Claim 12]

A method of capturing an image comprising:

selecting between a low-resolution mode and a high-resolution mode (Paragraph 50) [MODE pulse which is used for selecting the high and low resolution];

exposing an array of photocells that produce electrical charges in response to light exposure to light (Paragraph 51, lines 3-4, paragraph 58 lines 1-5); and

if the high-resolution mode is selected, then converting each electrical charge into a digital signal to produce a high-resolution image (Paragraph 76 lines 1-2);

else,

separating the array of photocells into discrete groups each having at least two photocells;

combining the electrical charges of each group's photocells together (Paragraph 76 lines 4-

6)[four pixels from two adjacent chips comprising the image sensor are combined to produced a low resolution image]; and

converting each group's combined electrical charges into a digital signal [Paragraph 90 lines 5-6,

Image sensor disclosed in figures 4, 5 or 6 is used in an image reading apparatus in figures 10

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and 11 and the output from the image sensor is subject to A/D conversion to convert the analog voltages into digital values];

[Claim 22]

A selectable resolution image capture system comprising:

an imager having a plurality of photocells producing electrical charges in response to light exposure (Paragraph 51, lines 3-4, paragraph 58 lines 1-5);

a high-resolution mode for converting each electrical charge produced by the plurality of photocells into corresponding digital signals to produce a full-resolution image (Paragraph 76 lines 1-2); and

a low-resolution mode for combining the electrical charges produced by groups of at least two photocells and converting the combined electrical charges of each group into corresponding digital signals to produce a low-resolution image (Paragraph 76 lines 4-6)[four pixels from two adjacent chips comprising the image sensor are combined to produced a low resolution image].

[Claim 13]

Grounds for rejecting claim 7 apply for claim 13 completely.

[Claim 18]

Grounds for rejecting claim 4 apply for claim 18 completely.

[Claim 19]

Grounds for rejecting claim 9 apply for claim 19 completely.

[Claim 23]

Grounds for rejecting claim 9 apply for claim 23 completely [If low resolution mode is selected then the electrical charges from different pixels are combined as disclosed in Paragraph 76].

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Kozuka (US PG-PUB # 2002/0044699 A1).

[Claim 8]

The selectable resolution image capture system of claim 1, where the imager is a monochrome imager. Kozuka is silent regarding the sensor to be a monochromatic imager. It is well known in the art to configure a sensor as either monochromatic or color imager. Therefore it would have been obvious to configure the sensor as a monochrome imager

5. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Kozuka (US PG-PUB # 2002/0044699 A1) in view of Kazuya Oda (JP # 06350911 A).

[Claim 15]

Kozuka teaches the limitations of claim 12 but fails to teach “.... selecting between a fast and slow exposure speed with which to expose the array of photocells to an image and selecting the low-resolution mode if the fast exposure speed is selected”. However this limitation is well known in the art as evidenced by Oda (Abstract)[At high shutter speed the charges are mixed which means a low resolution image]. Therefore taking the combined teachings of Kozuka and Oda, it would have been obvious to one skilled in the art to select between a fast and slow exposure speed with which to expose the array of photocells to an image and selecting the low--

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resolution mode if the fast exposure speed is selected. Doing so is advantageous because then a clear reproduction image of object can be produced without a flicker as taught in Oda

(Advantage)

[Claim 16]

Grounds for rejecting claim 11 apply for claim 16 completely. Claim 16 is just changing the sequence of steps of Claim 15. It is obvious to one of an ordinary skilled in the art that selection of any order of performing process steps is *prima facie* obvious **in the absence of new or unexpected results**. See *In re Burhans*, 154 F.2d 690,69 USPQ 330 (CCPA 1946).

6. Claims 5, 14 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kozuka (US PG-PUB # 2002/0044699 A1) in view of Palcic et al. (US Patent # 5,827,190).

[Claim 5]

Kozuka teaches the limitations of claim 1 but fails to teach "... where the image processor detects whether there is a low light condition, and if so, captures the image using the low-resolution mode of the circuit". However this limitation is well known in the art as evidenced by Palcic (col. 4 lines 8-11)[When a tissue image is illuminated to fluoresce the light sensitivity can be increased at low resolution images at low florescent light intensities].

Therefore taking the combined teachings of Kozuka and Palcic as a whole, it would have been obvious to one skilled in the art to incorporate an image processor which detects whether there is a low light condition, and if so, captures the image using the low-resolution mode of the circuit. Doing so will increase the sensitivity of the image sensor as two or more pixels are combined to generate more light per pixel as taught in Palcic (col. 4 lines 8-11).

[Claim 14]

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Grounds for rejecting claim 5 apply for claim 14 completely.

[Claim 24]

Grounds for rejecting claim 5 apply for claim 24 completely.

7. Claims 6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kozuka (US PG-PUB # 2002/0044699 A1) in view of Kuroiwa (PG-PUB # 2001/0017658).

[Claim 6]

Kozuka teaches the limitations of claim 1 but fails to teach "... where the image processor detects whether there is a low power condition, and if so, captures the image using the low-resolution mode of the circuit". However this limitation is well known in the art as evidenced by Kuroiwa (Paragraph 188 lines 27-30) Therefore taking the combined teachings of Kozuka and Kikuchi as a whole, it would have been obvious to one skilled in the art to incorporate an image processor which detects whether there is a low power condition, and if so, captures the image using the low-resolution mode of the circuit. Doing so would save an excessive power to be consumed if low-resolution images are taken when low power condition is detected.

[Claim 17]

Grounds for rejecting claim 6 apply for claim 17 completely.

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kozuka (US PG-PUB # 2002/0044699 A1) in view of Lin et al. (US Patent # 6,642,962).

[Claim 20]

Kozuka teaches the limitations of claim 19 but fails to teach, "...where the array of photocells are arranged in rows and columns with alternating patterns of red, green, red, green, and green

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blue, green, blue”. However this limitation is well known in the art as evidenced by Lin (col. 2 lines 22-27 figure 2). Therefore taking the combined teachings of Kozuka and Lin as a whole, it would have been obvious to one skilled in the art to have an array of photocells are arranged in rows and columns with alternating patterns of red, green, red, green, and green blue, green, blue known as a Bayer pattern. Doing so allows us to have half of the pixels as green to which human eye is most sensitive as taught in Lin (col. 2 lines 28-33).

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kozuka (US PG-PUB # 2002/0044699 A1) in view of Lin et al. (US Patent # 6,642,962) in further view of Tse (US Patent # 5,477,345).

[Claim 21]

Kozuka and Lin teach the limitations of claim 20 but fails to teach “.... where each group comprises four photocells that are responsive to the same color of light.” However this limitation is well known in the art as evidenced by Tse (col. 9 lines 23-25). Therefore taking the combined teachings of Kozuka, Lin and Tse as a whole, it would have been obvious to one skilled in the art to have where each group comprises four photocells that are responsive to the same color of light. Doing so would increase the read rate of the pixels in a low-resolution image.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kozuka (US PG-PUB # 2002/0044699 A1) in view of Tse (US Patent # 5,477,345).

[Claim 10]

Kozuka teaches the limitations of claim 1 but fails to teach “.... where the circuit, in the low-resolution mode, combines the electrical responses of groups of four same-colored photocells together and converts the combined electrical response of each group into a

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corresponding digital signal to produce a low-resolution image". However this limitation is well known in the art as evidenced by Tse (col. 9 lines 23-25)[Pixel averaging followed by subsampling is used to reduce resolution and is well known in the art]. Therefore taking the combined teachings of Kozuka and Tse as a whole, it would have been obvious to one skilled in the art to have a circuit which in the low-resolution mode, combines the electrical responses of groups of four same-colored photocells together and converts the combined electrical response of each group into a corresponding digital signal to produce a low-resolution image. Doing so would increase the read rate of the pixels in a low-resolution image.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K Aggarwal whose telephone number is (703) 305-0346. The examiner can normally be reached on M-F 9:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's primary examiner, Vu Le can be reached (703) 308-6613. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

YKA
January 16, 2004



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